

ABSTRACT

An electrosurgical instrument for fragmenting, cutting and coagulating tissue is described which includes a handpiece, a tool assembly and a nosecone. Preferably, the tool assembly is formed of an electrically conductive material and includes a first end having a distal tool tip and a second end adapted to be connected to an acoustic vibrator. The tool assembly at least partially defines an aspiration channel and is preferably supported by the handpiece. The nosecone is positioned about a distal end of the handpiece and a proximal end of the tool assembly in a fluid tight manner. A switch assembly for controlling delivery of electrosurgical energy to the tool assembly is supported on the nosecone. Preferably, the switch assembly is overmolded onto an inner housing of the nosecone by an electrically insulative material. In a preferred embodiment, the electrosurgical instrument may include an ionizable gas supply channel which communicates with an electrode to provide plasma coagulation.

(19) World Intellectual Property
Organization
International Bureau



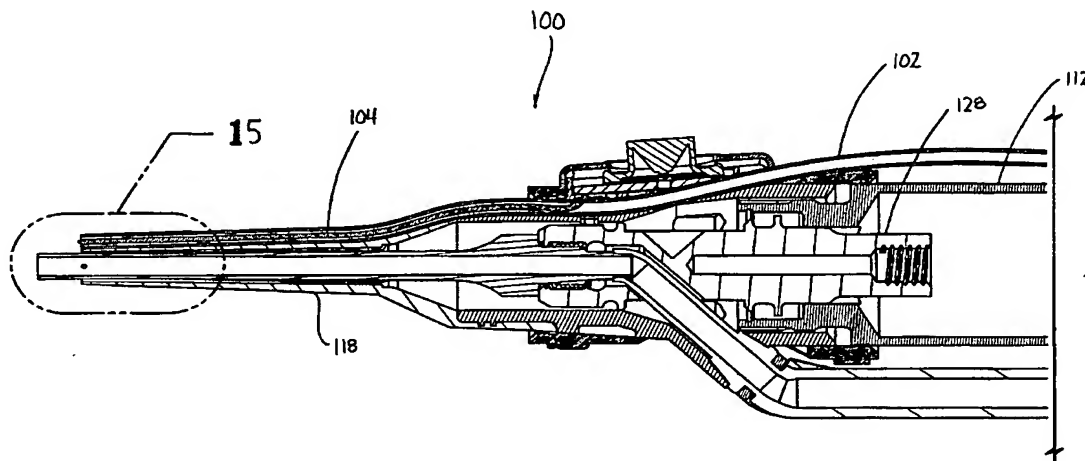
(43) International Publication Date
1 April 2004 (01.04.2004)

PCT

(10) International Publication Number
WO 2004/026150 A2

- (51) International Patent Classification⁷: **A61B 17/22**, 18/14
- (21) International Application Number: PCT/US2003/029712
- (22) International Filing Date: 19 September 2003 (19.09.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/412,473 20 September 2002 (20.09.2002) US
- (71) Applicant (for all designated States except US): **SHERWOOD SERVICES AG** [CH/CH]; Bahnhofstr. 29, 8200 Schaffhausen (CH).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **GARRISON, David, McMurray** [US/US]; 2324 Creekside Drive, Longmont, CO 80504 (US). **SARTOR, Joe, Don** [US/US]; 1036 Katy Lane, Longmont, CO 80301 (US).
- (74) Agents: **DENNINGER, Douglas, E. et al.**; United States Surgical, A Division of Tyco Healthcare Group LP, 150 Glover Avenue, Norwalk, CT 06856 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— without international search report and to be republished upon receipt of that report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ELECTROSURGICAL INSTRUMENT FOR FRAGMENTING, CUTTING AND COAGULATING TISSUE



(57) Abstract: An electrosurgical instrument for fragmenting, cutting and coagulating tissue is described which includes a hand-piece, a tool assembly and a nosecone. Preferably, the tool assembly is formed of an electrically conductive material and includes a first end having a distal tool tip and a second end adapted to be connected to an acoustic vibrator. The tool assembly at least partially defines an aspiration channel and is preferably supported by the handpiece. The nosecone is positioned about a distal end of the handpiece and a proximal end of the tool assembly in a fluid tight manner. A switch assembly for controlling delivery of electrosurgical energy to the tool assembly is supported on the nosecone. Preferably, the switch assembly is overmolded onto an inner housing of the nosecone by an electrically insulative material. In a preferred embodiment, the electrosurgical instrument may include an ionizable gas supply channel which communicates with an electrode to provide plasma coagulation.